of oxygen gas, or peroxide of hydrogen, though it is doubtful if these agents are effective except on the surface. The direct injection of oxygen into the tissues has been recommended, but I know of no series of cases proving its worth and reliability. Of course, interference with, or destruction of the blood supply may be so complete it can not be restored. 5. Amputation, in most cases, does not materially enhance the patient's chances of recovery, where an extremity is involved, but rather militates against it. This is not to be taken to mean that if amputation is indicated from other causes it should be delayed. 6. Plaster casts should not be employed as a first dressing, if at all in those fracture cases with extensive trauma, crushing and known introduction of dirt or other infective material. Anerobic and aerobic cultures from the wound and from the blood should be taken in all such severe traumatic cases. 7. Death is usually not due to the B. Welchii alone, but is more often the result of shock or sepsis, or both, though the gas bacillus may sometimes aid by symbiosis.

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PROGRESS OF OPHTHALMOLOGY IN THE YEAR 1914.

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The review of progress in ophthalmology herewith given will confine itself by space necessarily only to the most important new advances in diagnosis and treatment; by choice to those advances most likely to interest the general medical reader. In a specialty of as confined a therapeutic and operative scope as ophthalmology—one as old and in which for many years past a vast amount of work has collected—a year's advances and new facts established are limited. The last year has, however, brought out a few new ideas and has seen the practical working out and acceptance by the profession of some points in the debated ground of the years 1912-1913.

As regards new etiological factors: Parinaud's conjunctivitis, the cause of which has up to now been unknown, seems to have been cleared up by Verhoff, who has recognized in eleven cases the specific microorganism, a leptothrix forming filamentous masses from 10 to 60 m. in diameter, which mass was walled off by an area of cell necrosis such as he had previously recognized as characteristic of the disease. The organism is about the thickness of an influenza bacillus and contains darker dots which may be separated by spaces three or four times the thickness or scattered at longer intervals. They can be brought out by staining with carbol thionin and are best differentiated in tissue fixed with Zenker's fluid and stained by the Gram method, after preliminary treatment of the sections with xylol-balsam. Verhoff's review of the pathology and his very clear demonstration of these cases solves, I think, beyond a doubt, the up to now unknown etiological factor.

In trachoma, strides have been made in the right direction by a good many workers. Lindner of Vienna has succeeded in inoculating the conjunctiva of apes so as to produce the appearance of trachoma except for the formation of a later pannus and scar tissue; this, with material from adult trachoma cases, as well as from the blenorrhea of infants of non-gonococcal character. In both of these conditions, the trachoma bodies are found as well as in the conjunctiva of the inoculated ape. Histologically, the conjunctiva of the trachoma of the ape, of the trachoma of the adult and of the infantile blenorrhea of the non-gonococcus type cannot be differentiated. He has also found the same cell inclusions in the non-gonococcal fresh urethral discharge from both the male and female urethra. The tendency to regard this disease as one originating as a sexual one and later spreading from eye to eye by direct contact is gaining ground among investigators in the subject. Noguchi and Cohn have succeeded in growing this organism in pure culture.

The field of iritis and uveitis was thoroughly covered by Fuchs and De Schweinitz at the last London Congress. Their conclusions are that nearly all cases are due to direct bacterial action or at least to direct toxic effect. The coincidence with muscular rheumatism, "rheumatic myalgia," gout and chronic arthritis may depend upon a common cause, as is certainly true for instance in diabetes. Latent gonorrhea seems to be more important than previously thought, as a few undoubted cases have been promptly cured by injection of gonococcus vaccine obtained after finding gonococci in the urinary sediment of cases whose attack had been a good number of years before.

Lang, among 215 uveal inflammations, describes 139 as due to pyorrhea alveolaris. It may be caused by a hidden alveolar abscess. The etiological factor in sympathetic ophthalmia is still a debatable ground. In order to obtain the clinical syndrome and the pathological changes, which are absolutely definite ones, a perforating injury of the globe has always been deemed a sine qua non. Meller has, however, found cases of severe iridocyclitis, bilateral, leading to the clinical appearance of sympathetic ophthalmia, which pathologically showed the typical picture of sympathetic ophthalmia as well as some cases of sarcoma of the choroid which showed, in addition to the tumor, the definite histological picture of sympathetic ophthalmia. The

most generally accepted opinion at present is that it is an anaphylactic phenomena and that the second eye is sensitized to whatever may be the original cause by the destruction of the pigment of the first eye. In this connection, it is interesting to note that the blanching of the cilia and of the eyebrows, that is, a destruction of the pigment in these hairs, has been noted in several cases during the last year.

A new entity has been brought forward in the disease called angiopathia retinalis juvenilis, in which small and large hemorrhages take place in the retina followed by later proliferation of connective tissue and changes in the blood vessel walls of the retina, and occurs, as the title suggests, in fairly youthful individuals. In practically all of these people, some tuberculous latent or active process has been found and the only ones responding favorably to treatment have been those upon whom rigid tuberculin therapy has been carried out.

In operative procedures, the year has seen the firm establishment in this country of Elliott's operation for glaucoma, following the visit of Colonel Elliott, who trephined 135 eyes in 28 different clinics, convincing many American surgeons of the simplicity and value of the operation. We have in this operation a new method of relieving glaucoma; in some cases of permanently curing it. It consists in drawing a conjunctival flap from above, down to and beyond the corneal margin; in trephining a hole through the eye, approximately two-thirds lying in the cornea, one-third in the limbus; and performing through this hole an iridectomy in those cases in which the surgeon choses to do so. The hole is then covered by drawing the conjunctival flap back over it. In many cases, this produces a permanent opening through which the aqueous escapes to be taken up by the lymphatics of the conjunctiva. Tension, if there be no complicating factors, sinks to normal or below it and seems from the experience of the last three or four years to stay low or normal in the majority of cases. The difficulties of the older operations, namely, escape of lens and vitreous; a chamber through which it is hard to pass a knife and impossible to get in a lance: reduction of vision by traumatizing the capsule, choroidal hemorrhages, are in some instances entirely eliminated, in others relieved materially in this operation. Its main and only drawback seems to be infection of the eye which may at any time later develop through the flap, which in many cases is thin and cystoid. The number of eyes lost by later infection is increasing but the number is still very small as compared with the total operated upon.

In cataract, we have seen the adoption of Colonel Smith's intracapsular operation by a good many American surgeons who have had the opportunity of working with Smith and of acquiring their experience in a large number of cases. The operation leaves an ideal black pupil, leaves no membrane or cortex to be incised later, avoids postoperative iritis, and can be performed as well on an immature as on a mature cataract. There are many things to be said against it into which there is not space to enter here. It is being performed in America in the hands of a number of skilful men who have learned their technic from Colonel Smith and whose results we will all be interested to see in the course of the next few years.

In dacryocystitis, West's intranasal operation, in which the sac is broken into from the nose and drains down through a permanent opening, has been an improvement on some of the other intranasal methods. I do not believe it, however, to be as generally applicable as an external incision with removal of the entire sac. This last permanently prevents infection of the conjunctival sac and of any operation on the eye, and it is just in cases of cataract and other operations that we must be sure of not having a suppurating cavity communicating with the eye and avoid an open road for the nasal bacteria upward. In the acute cases treated usually by incision, drainage and hot applications, I have seen West's method work with marvelous rapidity, so that cases ordinarily not relieved for weeks, have been dismissed frrom the hospital at the end of one week without any sign of having had a suppurative dacryocystitis.

The operations for conical cornea have been improved by the addition of Elliott's trephine and a series of very successful cases have been reported in which, after or before cauterizing the apex of the cone, the globe has been trephined just as in glaucoma in order to reduce the tension, which, though not high for a normal eye, may in these cases, even though normal, be too much for the cornea and aid in producing the conical distortion.

Retinal detachment is about as hopeless a condition as ever and as unrelieved by any type of operation attempted as before. In an extensive inquiry by Vail among 281 American oculists, in whose experience something like 2,500 cases of detachment were included, 250 report not having seen a permanent cure, 31 have met with cures; 41 cases are said to have recovered. It seems that we are still a long way from being able to relieve this condition.

In retrobulbar neuritis, occurring with acute onset, usually one-sided and where symptoms of multiple sclerosis are not found, the opening of the accessory nasal sinuses is imperatively called for even in the absence of any sign of their involvement. Many cases have been reported by men with large clinical experience in which these cells have been found completely negative, but where a great and sudden improvement in the condition after they were opened occurred. Where cells have been found with turgid mucous membrane, or filled with polyps, upon their removal the ocular symptoms were relieved promptly. The feeling has arisen that, in these cases, prompt rhinological interference is justified in the absence of any evident sign of accessory nasal sinus disease.

Medicinal therapeutics seem to have received a decidedly new and valuable acquisition in ethylhydrocuprein. This is used in pneumococcus ulcers of the cornea and seems to be specific for pneumococcus infections. The application of a 1-2 per cent. solution on a pledget of cotton to the surface of the ulcer for a period of five to ten minutes, repeated, if necessary, in intervals of three

hours, is the usual mode of procedure. The reports from several European clinics as regards the prompt cure of cases in which we formerly had to resort to the galvano-cautery with resulting extensive scar formation are very favorable. It is to be noted, however, that the really bad cases were treated as before by galvano-cautery or Saemisch Section.

Salvarsan has been used extensively and not only in lues. Some cases of sympathetic ophthalmia cured by injections of salvarsan have been reported, to be taken, I believe, cum grano salis. The fear of giving salvarsan in active luetic optic neuritis and the belief that it might react unfavorably on the normal optic nerve has nearly disappeared. Syphilitics, to whom salvarsan has been administered, have reached immense numbers; the reports of optic nerve complications are minimal in number and may very well not be attributed even in these cases to the injection. In interstitial keratitis, salvarsan has been a failure, but then so has mercury. One sees cases pursuing their usual course in spite of all treatment. In many cases, we see a well mercurialized child developing the lesion in its second eye, weeks, months or years after the onset of the first one, just as if no anti-luetic treatment had been resorted to. It is true that salvarsan diminishes, for some reason, the photophobia, blephoraspasm and lacrymation from which these cases suffer in the acute stages. The process seems for a week or two to advance less rapidly than might be expected, and then goes on in its usual fashion.

In the unhappy children where glioma of the retina develops in both eyes and who are seen in this condition, the surgeon as a rule does not care to remove both eyes, nor will the parents allow this, nor, as a matter of fact, is much to be gained by it. X-ray in erythema doses seemed, in one case of Axenfeldt's, to have stopped the further development of the tumor during a period of one year. If the X-ray should offer nothing more than the stoppage of the mutilative process occurring in these eyes as the tumor develops in them, it would be a valuable addition to our therapeutic methods.

We have seen one entirely new method of diagnosis, Salzman's indirect ophthalmoscopy of the iridic angle. This method is extremely hard to acquire and is applicable only to a few specially suited cases, but it is an ingenious addition to the use of an instrument, the technic of which seemed to have been exhausted years ago. Measuring the tension of glaucomatous eyes by means of a tonometer has proved itself invaluable; not that it decides when to operate or whether to operate as much as that it serves to keep good control of the tension in eyes treated medicinally and to check up the course of eyes after operation. In methods of taking fields of vision, Bjerrum's chart has come to be an indispensable part of the ophthalmologist's appliances. It consists of a black surface painted on the wall or a black chart on which fine white and color marks are passed about at the discretion of the surgeon. The patient, sitting at about a meter's distance and looking at the center of the chart, has a much wider visual angle than with the ordinary perimeter and notices defects in the field much more readily, due to the distance and projection of the mark on the retina, which is so small that even small scotomata have the object fall within them, and not overlap their boundaries. It is especially valuable in mapping out the enlargement of the blind spot, which has been found to be a most valuable sign of some hidden accessory nasal sinus disease. Uhthoff noticed it in the early stages of many cases of brain tumor.

Occasionally one meets with a choroidal hemorrhage or a sub-choroidal hemorrhage and detachment of the retina and choroid where it is difficult to make a differential diagnosis with sarcoma of the choroid. In this instance, it has been suggested to examine the urine for melanin and this has, in two instances, proved valuable.

Lastly, as regards the present status of choked disc in brain tumor, a subject of constant interest and importance to the internist, neurologist, surgeon and ophthalmologist; the most complete review and most carefully worked out set of conclusions are to be found in the transactions of the Ophthalmological Society of the United Kingdom, Vol. XXXIV, 1914, in the Bowman Lecture by Professor W. Uhthoff entitled, "Ophthalmic Experiences and Considerations on the Surgery of Cerebral Tumors and Tower Skull," from which I take the following quotations:

Uhthoff notes the enormous preponderance of brain tumor in the etiology of bilateral choked disc (about 74.6 per cent. of all cases). He defines choked disc as a prominence of the papilla of at least 1.5 to 2 D. Unilateral choked disc he observed in 4.1 per cent. of his cases, not always on the same side as the tumor, and in the proportion 7 to 3 (66% ipsolateral), and says it is by no means always possible in tumor of the cerebrum to draw the conclusion from bilateral choked disc with greater prominence of one side that the seat of the tumor is situated on this side; only in 56 per cent. of the cases in question was the brain lesion on the side of the greater choked disc.

These results differ essentially from Horsely's. "Bilateral choked disc or optic neuritis, but with more prominence in one eye, was found to correspond with the situation of the cerebral tumor on the side of the greater neuritis in 73 per cent." This to us is an interesting statement. "More pronounced retinal hemorrhages on one side accompanied by unilateral choked disc, the result of a cerebral tumor, justifies the conclusion that the seat of the tumor is on the same side. (Horsley). In our material the opposite is as nearly often the case. Unilateral choked disc is of greater importance for the localization of brain abscess than of brain tumor. In cases of cerebral abscess with choked disc, the latter was unilateral in 13 per cent. and in four-fifths of the cases on the same side as the abscess." As regards the fields of vision, "the field of vision was practically about normal in 8 per cent. of my observations; in about 30 per cent. there existed as the only anomaly an enlargement of the blind spot. The other fields were more or less markedly involved. Further-

more, I cannot quite agree with the statements that have been made respecting a peculiar alteration in the limits of the color fields in the sense of an enlargement, especially of the red field and the shifting of the color boundaries towards and through each other, producing even an inversion of the limits of the color fields (red farther out than blue). In cases of intracranial disease, when sight is still good and the fundus normal, I do not think it is right from such an anomaly of the color sensation to draw the conclusion that choked disc will ensue."

I might mention that the importance of the interlacing fields which so many made themselves find after Cushing's announcement, has been during the year extremely modified by Cushing himself in a small footnote in an article by himself and Walker. Further, "in about fifty per cent. of instances where the operation was performed comparatively late in presence of already developed atrophy, a considerable diminution of vision or of the field of vision and further loss of sight occurred in spite of operative procedures. This fact admonishes action to an early operation. Again, only five per cent. of cases diagnosed as brain tumor were operated upon in presence of negative ophthalmoscopic findings so that on the whole, the existence of changes in the papilla, especially of choked disc, was the most important indication for operation."

To the reader whose interest in ophthalmoscopic advances goes somewhat further than can be satisfied in as short and incomplete a résumé as this one necessarily is, I would recommend the article by Jackson in Progressive Medicine, June 1914, or Jackson's Year Book for 1913 and that of 1914, which is still to appear.

SUGGESTIONS OF BILIARY TRACT SURGERY FOR THE GENERAL PRACTITIONER.*

By FAYETTE W. BIRTCH, M.D., San Francisco.

That the general practitioner is today doing more of his own surgical work than he formerly did is a matter of common observation. Reduction of medical fees, insurance control of accident cases, contract practice, greater competition due to the wide extent of reciprocity and an increase in the number of persons entering the medical field, combine to augment the difficulty of earning a livelihood. In addition to these causes, the increase in self-medication of minor complaints, greater knowledge of prophylaxis, and the removal from the hands of the medical men of those slight functional complaints allowed to recover under the supposed beneficial ministration of various kinds of healers, have been instrumental in removing from the domain of the legitimate medical man some of his former sources of revenue. Thus the work that he is called upon to do lies in the more difficult regions of medical and surgical practice. This has brought about the necessity for a readjustment of the physician to his new environment.

His better preliminary medical education and increased postgraduate experience enable the physician to cope with problems arising in surgical practice with no inconsiderable success. Another advantage is his acquaintance with responsibility, his wide range of experience making the general practitioner more self-reliant and better able to understand and cope with individual peculiarities of his patient. On the other hand, it must be agreed that surgery under these conditions cannot be of the highest order, though the family physician might have become a surgeon of renown had he had the advantages of a large surgical experience. In a great measure, the operator is made by his opportunities. If a surgeon performs five hundred appendectomies a year, he certainly would be a much better operator for this particular condition—other things being equal—than if he had only fifty cases in the same length of time. However, such extensive surgical experience is afforded to but few.

The general practitioner who admits that he is not as clever a surgeon as he might have been, will realize that he must produce average results if his surgical career is to be a success. It was with the idea in view of affording these men opportunities of following surgical and medical progress that the St. Luke's Hospital Club was established nearly two years ago. If the general practitioners are not to have the opportunity of large clinical material, they have a substitute in banding themselves together for co-operative study of methods and results of those more favorably situated. In this paper I aim to call attention to some of the responsibilities incurred by the general practitioner in doing surgical work and to show that he must prescribe for himself some educational scheme which may enable him to succeed in this difficult field. He must recognize wherein he is handicapped in order that he may be better prepared to avoid some of the pitfalls. Today I wish to add my part by giving you a few notes on biliary tract surgery.

In preparation for this specific kind of work, the general practitioner will naturally look to the writings of the foremost men on biliary duct diseases for instruction. In these writings he will read much about the necessity of early diagnosis, the proper type of operation to be selected in a given case, the different pathological classifications, the various theories as to physiology of the gallbladder, and the different causes of immediate or remote mortality. Yet from all of this he will not be able to glean much that is definite.

Authorities continually criticize the family physician for not recognizing biliary tract disease in its incipiency, and maintain that patients are brought to operation only when they present symptoms of late complications such as pain, tenderness, jaundice, fever, chills, sweats, or passing of stones in the stool. But how is the medical man to recognize the disease before these symptoms develop? It is all very well to say when these cases should have come to operation, just as it is easy to say that if cancer of the stomach be operated at the time the primary cell is dividing, a cure will re-

* Read before St. Luke's Hospital Clinical Club, February, 1915.